

JAN 17 2007

Attorney Docket No. PB 02 0022

Patent

AMENDMENTS TO THE CLAIMS

Claims 1-6 (Canceled)

7. (Original) A method for improving a downlink signal received by a listener on a phone, comprising:

calculating an environment noise level of the listener;

delaying the downlink signal if the environment noise level is less than a first threshold; and

filtering and adjusting gain of the downlink signal if the environment noise level is higher than a second threshold.

8. (Original) The method of Claim 7, further comprising:

delaying and adjusting gain of the downlink signal to create a delayed signal, if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold;

filtering and adjusting gain of the downlink signal to create a filtered signal, if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold; and

adding the delayed signal and the filtered signal if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold.

9. (Original) The method of Claim 7, wherein calculating the environment noise level comprises taking a slow moving average of a noise level of the listener's uplink signal.

10. (Original) The method of Claim 7, wherein calculating the environment noise level comprises taking a long time average of a noise level of the listener's uplink signal.

11. (Currently Amended) The method of Claim 7, wherein calculating the environment noise level comprises employing a signal level averaging technique to determine an average of a noise level of the listener's uplink signal.

Claims 12-14. (Canceled)

15. (Currently Amended) ~~The apparatus of Claim 14, further comprising:~~ An apparatus for improving a downlink signal received by a listener on a phone, comprising:

a noise level calculator that calculates an environment noise level of the listener;

a filter that creates a filtered downlink signal;

Attorney Docket No. PB 02 0022

Patent

a gain controller, coupled to the filter and the noise level calculator, that receives the filtered downlink signal and adjusts gain of the filtered downlink signal based on the environment noise level;

a delay line, coupled to the gain controller, that creates a delayed downlink signal, wherein the gain controller receives the delayed downlink signal and adjusts gain of the delayed downlink signal based on the environment noise level; and

an adder coupled to the gain controller that adds the delayed downlink signal and the filtered downlink signal.

16. (Currently Amended) The apparatus of Claim [[14]] 15, wherein the filter is a high pass filter.

17. (Currently Amended) The apparatus of Claim [[14]] 15, wherein the filter is an FIR filter.

18. (Currently Amended) The apparatus of Claim [[14]] 15, wherein the filter is an IIR filter.

Claims 19-20. (Canceled)

21. (New) A computer readable storage medium storing instructions for improving a downlink signal

received by a listener on a phone, wherein upon execution, the instructions instruct a processor to:

calculate an environment noise level of the listener;

delay the downlink signal if the environment noise level is less than a first threshold; and

filter and adjust gain of the downlink signal if the environment noise level is higher than a second threshold.

22. (New) The computer readable storage medium of Claim 21, further comprising:

delay and adjust gain of the downlink signal to create a delayed signal, if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold;

filter and adjust gain of the downlink signal to create a filtered signal, if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold; and

add the delayed signal and the filtered signal if the environment noise level is greater than or equal to the first threshold and less than or equal to the second threshold.

23. (New) The computer readable storage medium of Claim 21, wherein calculating the environment noise level comprises taking a slow moving average of a noise level of the listener's uplink signal.

Attorney Docket No. PB 02 0022

Patent

24. (New) The computer readable storage medium of Claim 21, wherein calculating the environment noise level comprises taking a long time average of a noise level of the listener's uplink signal.

25. (New) The computer readable storage medium of Claim 21, wherein calculating the environment noise level comprises employing a signal level averaging technique to determine an average of a noise level of the listener's uplink signal.

26. (New) The method of Claim 9, wherein taking the slow moving average comprises employing time constants that slow down a noise level average.

27. (New) The method of Claim 9, wherein taking the slow moving average comprises employing rise and fall time constants.

28. (New) The method of Claim 10, wherein taking the long time average comprises employing time constants that slow down a noise level average.

29. (New) The method of Claim 10, wherein taking the long time average comprises employing rise and fall time constants.

30. (New) The method of Claim 11, wherein employing the signal level averaging technique comprises:

increasing a current noise level average if the listener's uplink signal is larger than the current noise level average; and

reducing the current noise level average if the listener's uplink signal is smaller than the current noise level average.

31. (New) The method of Claim 11, wherein employing the signal level averaging technique comprises:

increasing slightly a current noise level average if the listener's uplink signal is larger than the current noise level average; and

reducing greatly the current noise level average if the listener's uplink signal is smaller than the current noise level average.

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